



neuropharmaceuticals commercialization

neuronano pharma

11th Annual NanoBusiness Conference

Nanomanufacturing Summit

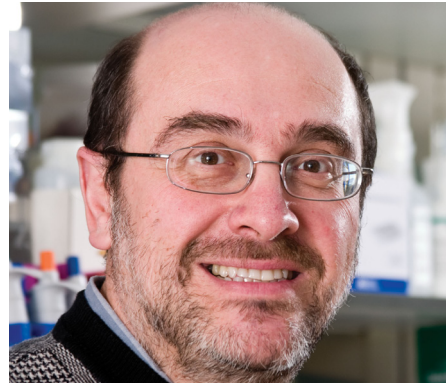
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Boston, MA

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I. Introduction

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Alexander Kabanov,
Co-founder

UNC - Chapel Hill,
Eshelman School of Pharmacy,
Center for Nanotechnology in Drug Delivery



Zagit Gaymalov
Co-founder and CEO

UNC - Chapel Hill,
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1. Problem:

Global obesity epidemics

2. Unmet need:

Safe and effective anti-obesity drug

3. Solution:

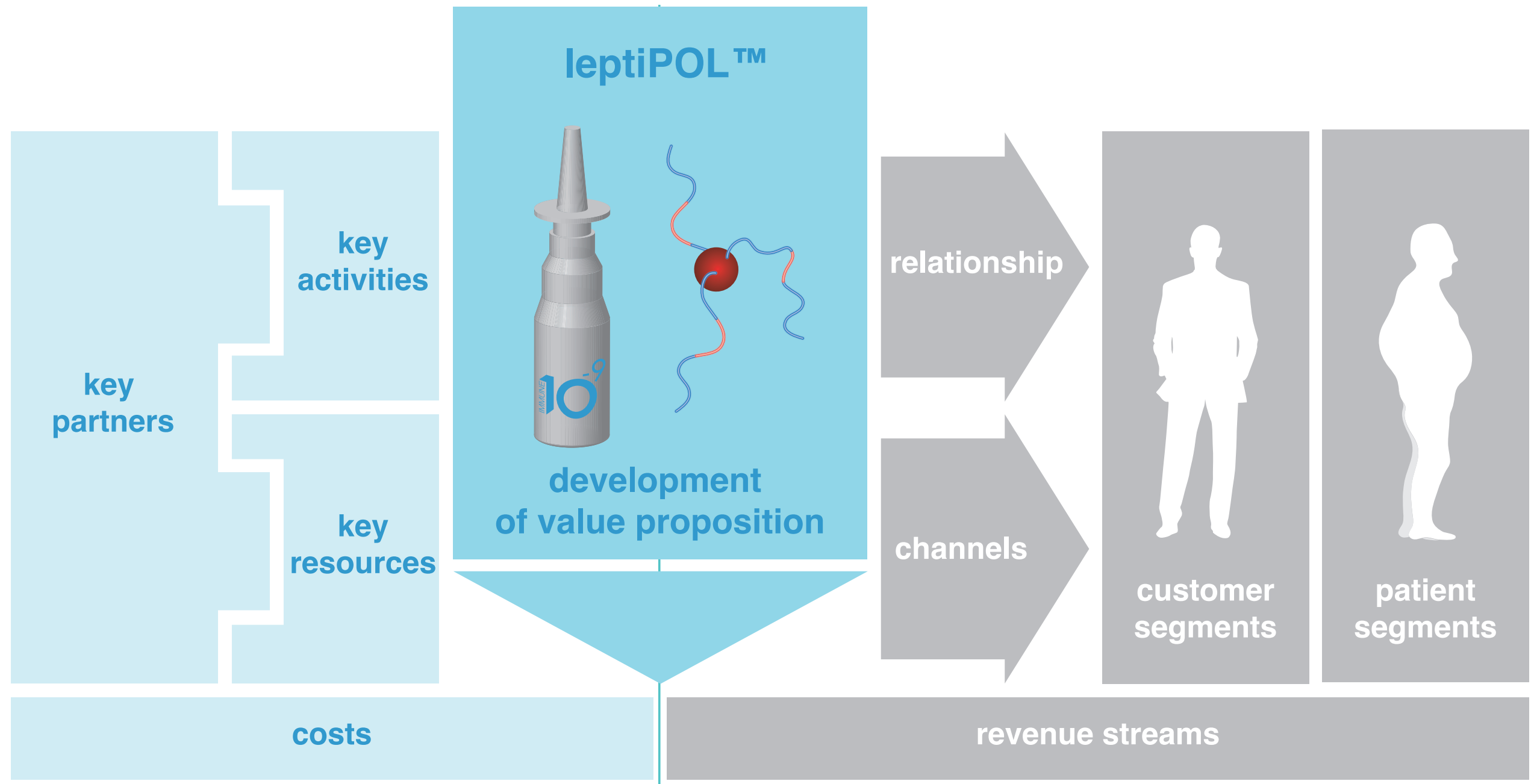
leptiPOL™ - intranasal conjugated leptin formulation

4. Capital & time requirement

\$15M (up to 20X ROI, 7-10 years)

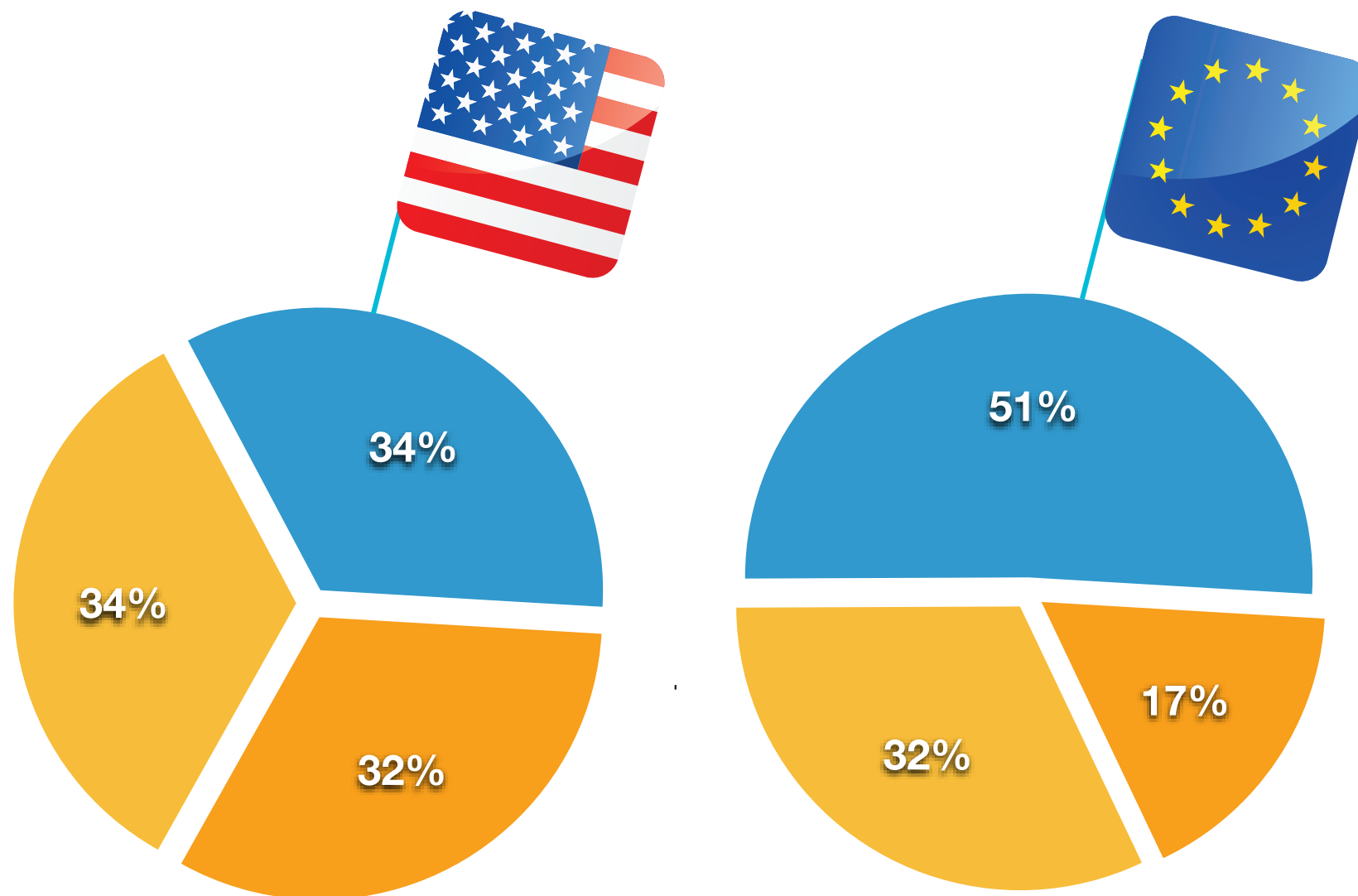
II. Our Business Model

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We are a pharmaceutical company focused on development of leptin based anti-obesity intranasal formulation

III. Problem - Global Obesity Epidemics



Obesity is not a personal choice, its a disease.

- **Estimated annual obesity market size \$1.7B.**
- **US population: 313M**
- **EU population: 711M**

healthy

overweight

obese

IV. Current Treatment Options & Limitations

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1. Diet & Exercise

Low compliance

2. Supplements

Unknown efficacy

3. OTD & Rx Drugs

Unwanted side effects

4. Surgery

High risks & costs

V. Obesity Market Unmet Needs

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1. Immediate efficacy

2. Safety of chronic use

3. Ease of administration

4. Low side effects

5. Independence of diet and exercise

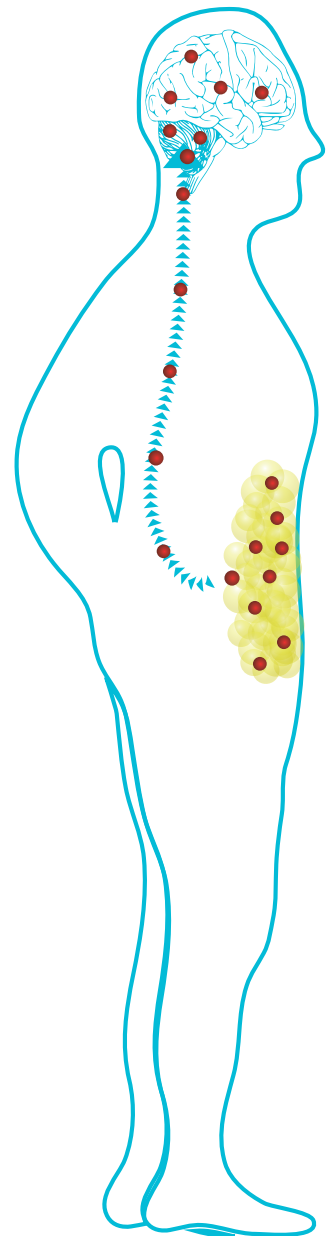
6. Wideness of safe dose range



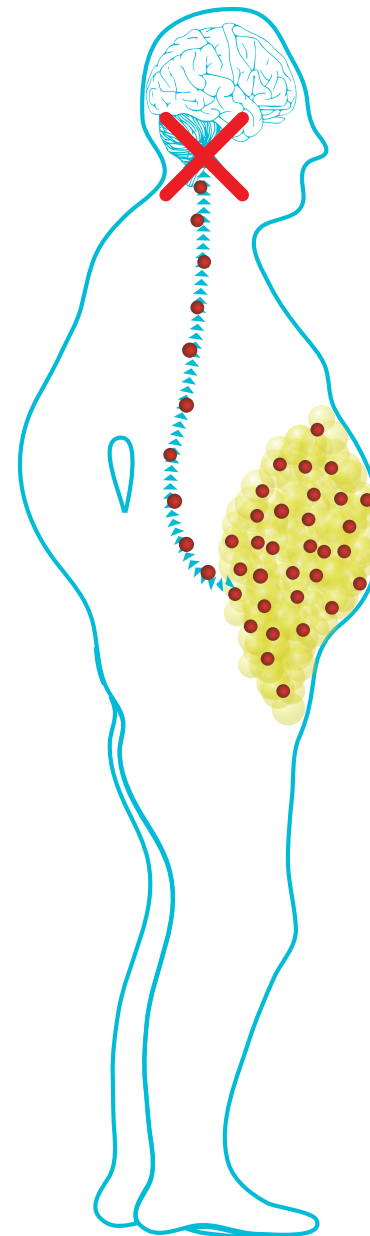
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of NORTH CAROLINA
at CHAPEL HILL

VI. Leptin Role in Obesity

Leptin is a hormone produced in adipose tissue. It lowers appetite and signals the body to burn fat.



In healthy persons, leptin transported to the brain through BBB, via leptin receptors

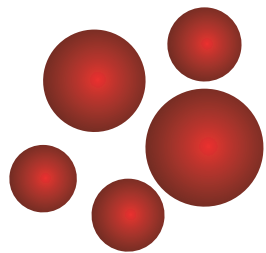


In obese patients, receptor mediated leptin transport to the brain is impaired (leptin desensitization).

VII. Leptin Hormone Based Drugs Evolution

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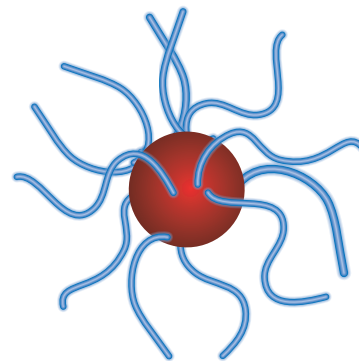
First generation:
naked leptin



1990s

fragile,
non-stable,
short half-life,
low bioavailability,
does not cross BBB

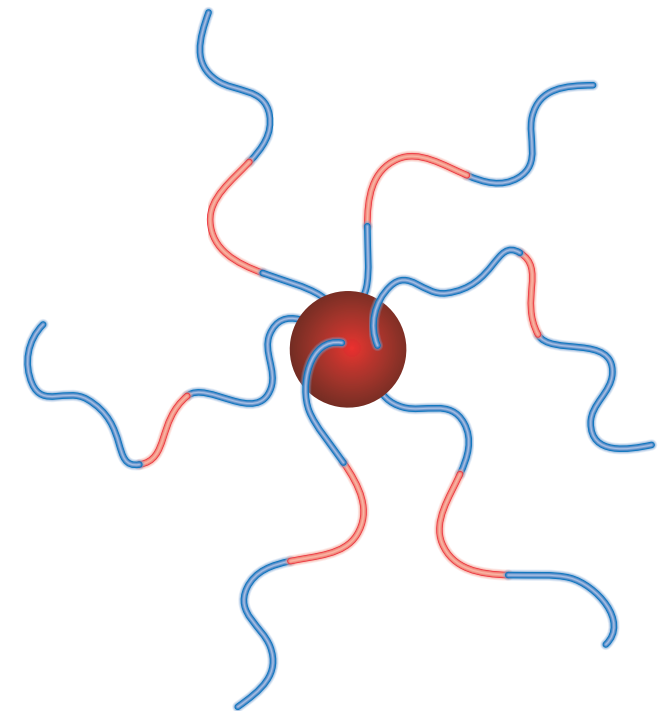
Second generation:
PEGylated leptin



2000s

stable,
prolonged half-life
long shelf-life,
low bioavailability,
does not cross BBB

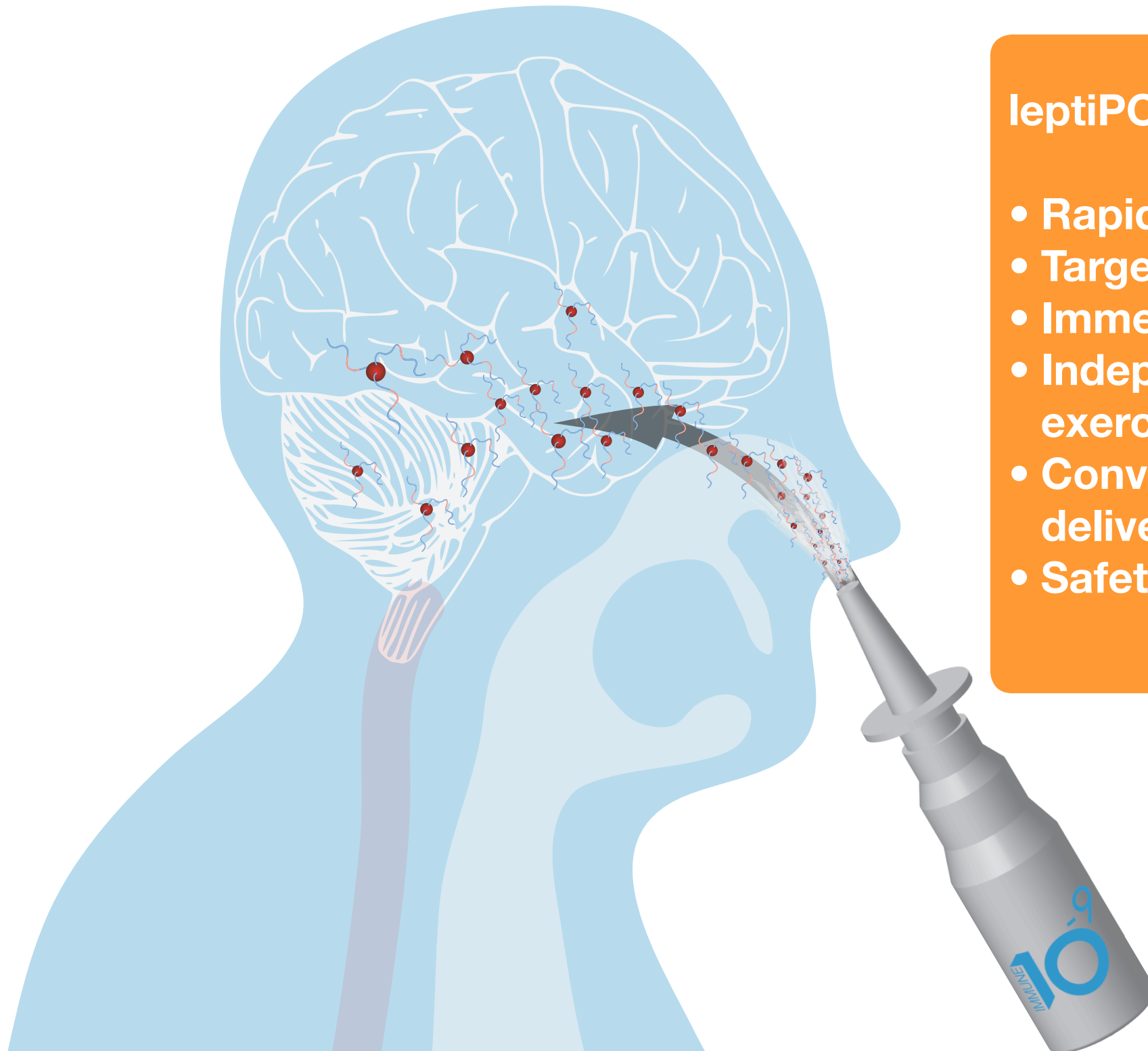
Third generation:
leptiPOLTM



2010s

stable,
prolonged half-life
long shelf-life,
high bioavailability,
cross BBB

VIII. leptiPOLTM - a Novel Leptin-Based Drug



leptiPOLTM HM advantages:

- Rapid brain delivery
- Targeted hypothalamus delivery
- Immediate effectiveness
- Independence of diet and exercise
- Convenience of intranasal delivery
- Safety (overdose, fluctuation)

IX. Preclinical Data

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What?

Treatment with leptiPOL reduces food intake and body weight

How?

LeptiPOL crosses blood brain barrier and reaches brain independent of leptin transporter

When?

LeptiPOL starts working as early as 20 minutes after administration

Other?

Intranasal administration is convenient and effective

X. Intellectual Property Portfolio

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Extensive IP portfolio (over 30 patent and patent applications)
exclusively licensed to NeuroNano Pharma



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of NORTH CAROLINA
at CHAPEL HILL



X. Intellectual Property Positioning

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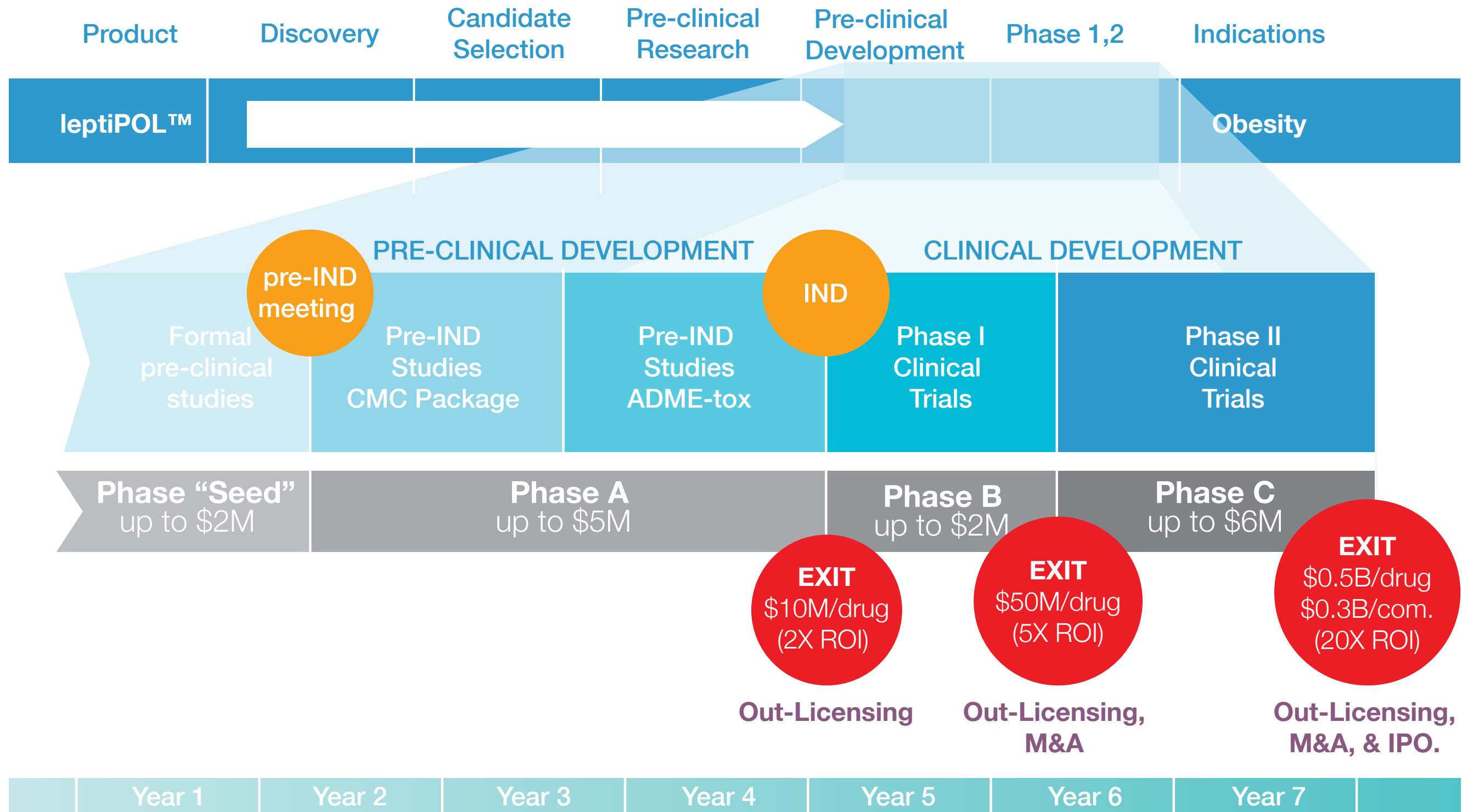
IP positions secured in United States and number of strategically identified countries: Europe, Japan, Australia, Canada, & Russia

Opinions on Freedom to Operate are in process

Branding strategy and implementation efforts has been initiated

XI. Commercialization Pathway

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XII. Why Invest in NeuroNano Pharma?

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1. Problem: Global obesity epidemics

2. Need: Delivery of leptin to the brain

3. Solution: leptiPOLTM HM - intranasal conjugated leptin formulation

4. Secured IP: Over 30 patents and patent applications covering defined regional markets

5. Up to 20X ROI: With \$15M capital requirement up to 20X ROI in 7-10 years

Questions?
Please contact Z...

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